MEMORANDUM FOR the Cadet Class of 2019

SUBJECT: Fundamental Concepts Exam

1. Your success in college-level math, science, and engineering courses depends on a firm understanding of pre-calculus material. All students entering the core academic program at West Point should possess a core set of math skills in order to effectively advance their learning, especially in the required math, science, and engineering courses. Our experience indicates that if students lack a good understanding of these concepts, then they will most likely not perform to their full potential. You can find a list of these skills and concepts, under the link titled “Required Knowledge for Entering Cadets” at: [http://www.westpoint.edu/math/SitePages/Prospective%20Students.aspx](http://www.westpoint.edu/math/SitePages/Prospective%20Students.aspx). Also at this website you will find a link titled “Useful Formulas.” You should commit the listed formulas to memory. The Prospective Students website contains several additional links to practice exams (along with solutions), worksheets, and resources to assist you in reviewing the required math knowledge. You should seek remedial assistance in any area in which you feel like your skills are weak.

2. To assess a student’s knowledge of the fundamental skills referred to above, the Department of Mathematical Sciences administers a Fundamental Concepts Exam (FCE), also known as the Summer Gateway Exam, to all new cadets during Cadet Basic Training. Your performance on this test (along with other indicators including standardized test scores, advanced placement exam scores, and performance in previous math classes) plays a role in determining your initial placement in the core math program at West Point. Most students will be enrolled in MA103 (Mathematical Modeling and Introduction to Calculus). Many will have the opportunity to enroll in MA153 (Advanced Multivariable Calculus, see [http://www.westpoint.edu/math/SitePages/Advanced%20Core%20Mathematics%20Program.aspx](http://www.westpoint.edu/math/SitePages/Advanced%20Core%20Mathematics%20Program.aspx)). Students who show lower levels of proficiency on the Summer Gateway and the other indicators may be placed in Pre-Calculus (MA100) during their first semester. Enrollment in MA100 requires students to take a minimum of four math courses as part of the core graduation requirement instead of the standard minimum of three math courses, and almost guarantees the student will have to take courses during summer school or over-load in future semesters.

3. Cadets who earn 80% or greater on the Summer Gateway Exam during Cadet Basic Training will have met the fundamental concepts proficiency discussed in paragraph one. Those who do not achieve 80% or greater on the Summer Gateway Exam will be required to take the FCE during the first month of the fall semester. Failure to achieve a score of at least 80% on the FCE may be grounds for remediation such as repeating MA103 or being moved from MA103 to MA100.

4. The requirement to meet the defined levels of proficiency on fundamental skills should not be taken lightly. Time spent mastering these skills now will save much time during the first semester when you will need it for other things and will potentially help you avoid having to enroll in summer school classes.

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